

L 30048-65 EWT(m)/EPF(c)/EWG(m)/EWP(j)/T/EWA(c) Pc-4/Pr-4 RPL RM/RWH  
S/0076/65/039/002/0433/0435

ACCESSION NR: AP5006693

AUTHOR: Strunin, V. A.

TITLE: Condensed zone burning of explosives 5

SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 2, 1965, 433-435

TOPIC TAGS: explosive burning, burning velocity, reaction kinetics, mercuric fulminate, explosive

ABSTRACT: Previous studies of the condensed phase burning of explosives do not account for the kinetics of the chemical reactions occurring during burning. An equation which takes into account the kinetics of chemical reactions was derived for calculating the condensed phase burning velocity ( $u$ ) of explosives. Expressions correlating other parameters of the burning (temperature,  $T$ ; degree of conversion  $\eta$ ; degree of dispersion,  $\eta_d$ ; activation energy,  $E$ ; and thermal diffusivity,  $a$ ) of explosives were also derived. To verify the theory,  $u$ ,  $\eta$ ,  $\eta_d$ , and  $a$  for the condensed phase burning of mercuric fulminate, which burns without flame in vacuo, were calculated using the equations derived. The calculated data are in fair agreement with experimental data. Orig. art. has: 1 figure and 11 formulas. [PS]

Card 1/2

L 30048-65

ACCESSION NR: AP5006693

ASSOCIATION: Akademiya nauk SSSR, Institut khimicheskoy fiziki (Academy of Sciences, SSSR, Institute of Chemical Physics)

SUBMITTED: 18Jan64

ENCL: 00

SUB CODE: WA

NO REF SOV: 006

OTHER: 001

ATD PRESS: 3194

Card 2/2

KAZANSKIY, V.B.; MARDALEYSHVILI, R.Ye.; STRUNIN, V.P.; VOYEVODSKIY, V.V.

Velocity constant of hydrogen dissociation on a palladium surface  
as determined from data on diffusion in palladium (with English  
summary in insert). Zhur.fiz.khim. 30 no.4:821-826 Apr. '56.  
(MLRA 9:9)

1. Moskovskiy gosudarstvennyy universitet imeni M.V. Lomonosova  
Akademiya nauk SSSR.  
(Hydrogen) (Palladium)

STRUNIN, V. P.,

"Diffusion of Hydrogen Through Palladium and Determining the Dissociation Rate for Hydrogen on the Surface of Palladium," Research in Physics and and Radio Engineering, Moscow, Oborongiz, 1956. p 76.

The book is a collection of 13 articles written by instructors and graduate and undergraduate students of the Moscow Inst. of Physics and Technology. The articles discuss problems in radiophysics, optics and physics.

STRUNIN, V.P.

Diffusion of hydrogen through palladium and determination of the  
hydrogen dissociation constant on the surface of palladium by means  
of this diffusion. Trudy MTI no.2:76-80 ' 58. (MIRA 11:12)  
(Diffusion) (Hydrogen) (Palladium)

KAZANSKIY, V.B.; STRUNIN, V.P.

Nature of the temperature maximum of the reaction rate for the  
hydrogenation of ethylene on metals. Kin. i kat. 1 no. 4:553-  
557 N-D '60. (MIRA 13:12)

1. Institut khimicheskoy fiziki AN SSSR.  
(Ethylene) (Hydrogenation)

STRUNIN, V.P.; FRANKOVICH, Ye.L.

Method for producing glass and quartz diaphragms for flow  
type systems of mass spectrometers. Prib. i tekhn. eksp. 9  
no.2:175-176 Mr-Apr'64. (MIRA 17:5)

1. Institut khimicheskoy fiziki AN SSSR.

L 6521-66 EWT(m)/EPF(c)/T/EWA(c) WE

ACC NR: AP5026027

SOURCE CODE: UR/0405/65/000/001/0059/0069

AUTHOR: Merzhanov, A. G. (Moscow); Strunina, A. G. (Moscow)

ORG: none

TITLE: Relationships of thermal explosion under heating at constant rate

SOURCE: Nauchno-tekhnicheskiye problemy goreniya i vzryva, no. 1, 1965, 59-69

TOPIC TAGS: thermal explosion, combustion, ignition, combustion theory, kinetics, reaction kinetics

ABSTRACT: A theoretical study has been made of thermal explosion with varying temperature of the surrounding medium. The parameters of thermal explosion were calculated for monomolecular, bimolecular, and autocatalytic reactions. Exact and approximate solutions were obtained by numerical integration and by pseudoisothermal approximation, respectively. A plot of explosion temperature vs the rate of heating showed that in monomolecular reactions, the explosion temperature decreases with increasing rate of heating to the critical value corresponding to static conditions. In autocatalytic reactions, depending on conversion, the explosion temperature either first increases and then decreases or it only increases. Orig. art. has: 2 figures, 23 formulas, and 5 tables. [PV]

SUB CODE: FP/ SUBM DATE: 02Nov64/ ORIG REF: 006/ ATD PRESS: 4139

Card 1/1



L 6420-66 EWT(1)/EWT(m)/EPF(c)/T/FGS(k)/EWA(c) WE

ACC NR: AP5026074

SOURCE CODE: UR/0405/65/000/002/0108/0114

AUTHOR: Strunina, A. G.; Merzhanov, A. G.; Mayofis, Z. B.

ORG: None

TITLE: Dynamic thermal explosion conditions. Part 2. Thermal condition regularities during constant rate cooling

SOURCE: Nauchno-teknicheskiye problemy goreniya i vzryva, no. 2, 1965, 108-114

TOPIC TAGS: heat of explosion, cooling rate, thermal explosion, explosion intensity

ABSTRACT: The first part of this paper (Nauchno-teknicheskiye problemy goreniya i vzryva, 1965, 1) investigated thermal explosion conditions during the heating of the surrounding medium. The present article studies these conditions for the case of cooling. The explosion pattern and its basic characteristics are studied. The derivation of the approximate solution to the problem, the results of numerical computer integration of an original system of equations, and a discussion of the critical heating rate, pre-explosion reaction intensity, pre-explosion heating, and of other pertinent parameters describing the events are given. The article concludes with a discussion of the application of the linear cooling method to the experimental study of the thermal explosion of strongly self-accelerating reactions. The authors thank A. S. Ukolov for several computations carried out during the investigation. Orig. art. has: 13 formulas, 5 figures, and 3 tables.

UDC: 541.126+536.48

Card 1/1 SUB CODE: WA, FP, TD / SUBM DATE: 23Nov64 / ORIG REF: 003

L 15870-66 EWT(1)/EWT(m)/EPF(n)-2/FCC/T/ETC(m)-6/EWP(n) WW/JW/JJD/WE  
ACC NR: AP6004428 SOURCE CODE: UR/0414/65/000/003/0036/0040

AUTHOR: Strunina, A. G. (Moscow); Gontkovskaya, V. T. (Moscow); Merzhanov, A. G. (Moscow)

ORG: none

TITLE: Dynamic conditions of thermal explosion. III. Temperature field during heating and problems of the transition from spontaneous combustion to ignition

SOURCE: Fizika goreniya i vzryva, no. 3, 1965, 36-40

TOPIC TAGS: chemical explosion, combustion kinetics, temperature distribution

ABSTRACT: Equations for thermal explosion during heating are numerically solved with regard to temperature distribution. The paper is a continuation of previous studies (A. G. Merzhanov, A. G. Strunina, Scientific and Technical Problems of Combustion and Explosion, 1965, 1; A. G. Merzhanov, A. G. Strunina, Z. B. Mayofis, Scientific and Technical Problems of Combustion and Explosion, 1965, 2) and the notation is the same as that used in these articles. The problem was solved on a computer. Analysis of the numerical solution shows that ignition under dynamic heating conditions is completely analogous to the process under static conditions. The

Card 1/3

UDC: 536.46+536.48

L 15870-66

ACC NR: AP6004428

0

basic parameter in defining the exchange conditions is the rate of heating  $\omega$ . Curves are given showing nonstationary temperature profiles for a monomolecular reaction at a Biot number of infinity and various values of  $\omega$ . Four regions are distinguished with respect to heating rate: 1.  $\omega < \omega_*$  -- ignition does not take place; 2.  $\omega_* < \omega < \omega'_*$  -- region of spontaneous combustion. For the case of heating close to the surface, a maximum is developed in the heating cycle which then moves to the center of the system (ignition starts at the center); 3.  $\omega > \omega'_*$  -- the transition region for ignition conditions. The heating maximum does not reach the center, and ignition starts some distance away. As the heating rate is increased, the coordinate for generation of combustion moves toward the surface; 4.  $\omega \gg \omega'_*$  -- the limiting region of ignition. A table is given showing the upper and lower critical heating rates for various Biot numbers. The data show that the spontaneous combustion region is considerably wider under dynamic conditions than for static processes. This is due to the fact that conditions for generation of a heating maximum are less favorable in the dynamic process because of the temperature increase on the surface of the system. The region of spontaneous combustion under dynamic conditions increases in latitude with a reduction in the Biot number. These data are compared with solutions disregarding temperature distribution. Curves are given based on both systems of equations for the temperature of onset of combustion as a function of heating

Card 2/3

L 15870-66

ACC NR: AP6004428

rate. The curves show a divergence of only about  $2^{\circ}\text{C}$  throughout the entire region of spontaneous combustion. Thus temperature distribution may be disregarded in this region. Orig. art. has: 4 figures, 1 table, 4 formulas.

SUB CODE: 21/ SUBM DATE: 22Jan65/ ORIG REF: 004/ OTH REF: 000

LC  
Card 3/3



L 43036-66 EWT(1)/EWP(m)/EWT(m)/T WW/JW/JWD

ACC NR: AP6029761

(A)

SOURCE CODE: UR/0414/66/000/002/0090/0095

AUTHOR: Strunina, A. G. (Moscow); Abramov, V. G. (Moscow); Lovlya, S. A. (Moscow); 79  
Dement'yev, V. A. (Moscow)

ORG: none

78  
B

TITLE: Study of the conditions of application of the thermally stable explosive  
 No. 2 at high temperatures

SOURCE: Fizika gorennya i vzryva, no. 2, 1966, 90-95

TOPIC TAG: explosive, thermal stability, critical temperature, ~~induction period~~,  
 ignition delay, explosive charge, critical pressure, high temperature effect,  
 ignition, critical point

ABSTRACT: The conditions under which the thermally stable explosive No. 2<sup>11</sup>  
 (unspecified) may be used, e.g., under elevated temperatures and pressures, in deep  
 oil wells, were studied experimentally and theoretically. Critical ignition tempera-  
 ture  $T_*$ , critical induction period  $t_*$ , and critical charge diameter  $d_*$  were measured  
 in a constant temperature reaction vessel with a layer of sand between the charge  
 and the reactor walls. Equations were derived for calculating the critical tempera-  
 tures of explosive No. 2 and for calculating the critical induction period for  
 the explosive at any temperature. The upper temperature limit for the application  
 of explosive No. 2 decreased with increasing charge diameter from 190 at  $d = 1.6$  cm  
 to 175°C at  $d = 5.0$  cm. The experimental data are in good agreement with the  
 calculated data. Since the induction period increased with increasing charge diameter,

Card 1/2

UDC: 541.427.6

L 1036-86

ACC NR: AP6029761

large diameter charges are not practicable. It is shown that the explosive system has a "memory effect", i.e., the self-ignition delay in charges kept at certain temperatures for a second time,  $t_2 = t_{ind} - t_1$ , where  $t_1$  is the ignition delay time after the first thermostating. It is shown that the explosion energy and detonation velocity of the charge decreased with increasing residence time of the charge (in an oil well), and the sensitivity of the charge to impact increased with the residence time. Orig. art. has: 3 tables, 3 figures, and 4 formulas. [PS]

SUB CODE: 19/SUBM DATE: 21Jul65/ORIG REF: 007/ATO PRESS: 5066

Card

2/2

20

STRUNINA, A.V.; ZEL'VENSKIY, Ya.D., kand.khim.nauk; IVANOVSKIY, F.P.,  
kand.tekhn.nauk

Absorption of carbon disulfide by monoethanolamine solutions.  
Trudy GIAP no.7:195-212 '57. (MIRA 12'9)  
(Gas purification) (Carbon disulfide) (Ethanol)



"APPROVED FOR RELEASE: 08/26/2000

CIA-RDP86-00513R001653620001-7

Y A . . . . . 0 1/2 11

APPROVED FOR RELEASE: 08/26/2000

CIA-RDP86-00513R001653620001-7"

ZEL'VENSKIY, Ya.D.; STRUMINA, A.V.

Solubility of hydrogen sulfide in methanol at a low temperature. Gaz.prom. 5 no.1:42-47 Ja '60.

(MIRA 13:4)

(Hydrogen sulfide) (Methanol)

ZEL'VENSKIY, Ya.D.; STRUNINA, A.V.

Solubility of sulfur organic compounds in methanol at low temperature.

Gaz.prom. 5 no.10:47-52 O '60.

(MIRA 13:10)

(Sulfur organic compounds)

(Methanol)

KORDYSH, Ye.I.; LIVKE, V.A.; STRUNINA, A.V. Prinipalni uchastiyey: BOFANYUK,  
G.P.; GORWANCVA, E.V.; SAMOYLENKO, L.N.

Contamination of expansion gases from ammonia production by  
hydrogen sulfide as a result of occurring biochemical processes.  
Khim. prom. 41 no. 12:901-902 D '65 (MIRA 19:1)

L 23381-65 EWT(1) OW  
ACCESSION NR: AR5002531

S/0169/64/000/010/V005/V006

SOURCE: Ref. zh. Geofizika, Abs., 10V28

AUTHOR: Naumenko, M. F.; Paka, V. T.; Strunina, M. A.; Trinchuk, B. E.;  
Chigrakov, K. I.

TITLE: Apparatus and methods for investigation of some types of turbulent mixing

CITED SOURCE: Sb. Materialy 2 Konferentsii po probl. Vzaimodeystviye atmosf. i gidrosf. v sev. chasti Atlant. okeana. L., Leningr. un-t, 1964, 156-160

TOPIC TAGS: hydrology, hydrological instrument, turbulent mixing, oceanography, thermohydrometer

TRANSLATION: The authors describe a set of instruments for the investigation of turbulent mixing by direct methods. It was developed by the Kaliningradskoye Otdeleniye Instituta Okeanografii AN SSSR (Kaliningrad Division, Institute of Oceanography, AN SSSR). The mean velocity sensor is a thermohydrometer employing semiconductor thermoresistors (MMT-1 and MMT-9); they were used with indirect heating by a direct current (a heating wire of manganan is wound on the lacquer-coated body of the thermoresistor). The accuracy of recording is 3%; sensor

L 23381-65

ACCESSION NR: AR5002531

0

inertia is 1-30 sec. The maximum linear dimension is not more than 15 mm. Velocity fluctuations are recorded using a corner sensor of 2 nickel wires 100 $\mu$  in diameter which are stretched at right angles to one another. The sensor is used to measure the angle of deviation of the velocity vector from the axis of the sensor in the plane of the wires and also the instantaneous velocity; the components are computed from the angle and modulus of velocity. With the sensor in a vertical position it is possible to record the vertical fluctuations; when in a horizontal position -- the transverse fluctuations. Sensitivity of the sensor is about 1 mm/sec. per 1 mm of the record; inertia is about 0.01 sec. Temperature was measured by a group of thermocouples or by a MT-54 thermistor; sensitivity of the temperature sensors is 0.005 /mm. All data obtained under field conditions were analyzed in the office using semiautomatic correlators. The described apparatus was used for a study of mixing in shallow water (in the Liyelupe River). The derived data characterize the turbulent system of discharge and wind currents in a river under homogeneous thermal conditions. K. Chernoskutov.

SUB CODE: ES

ENCL: 00

Card 2/2

L 23381-65 EWT(1) GW  
ACCESSION NR: AR5002531

S/0169/64/000/010/V005/V006

SOURCE: Ref. zh. Geofizika, Abs., 10V28

AUTHOR: Naumenko, M. F.; Paka, V. T.; Strunina, M. A.; Trinchuk, B. F.;  
Chigrakov, K. I.

TITLE: Apparatus and methods for investigation of some types of turbulent mixing

CITED SOURCE: Sb. Materialy 2 Konferentsii po probl. Vzaimodeystviye atmosf. i gidrosf. v sev. chastii Atlant. okeana. L., Leningr. un-t, 1964, 156-160

TOPIC TAGS: hydrology, hydrological instrument, turbulent mixing, oceanography, thermohydrometer

TRANSLATION: The authors describe a set of instruments for the investigation of turbulent mixing by direct methods. It was developed by the Kaliningradskoye Otdeleniye Instituta Okeanografii AN SSSR (Kaliningrad Division, Institute of Oceanography, AN SSSR). The mean velocity sensor is a thermohydrometer employing semiconductor thermoresistors (MMT-1 and MMT-9); they were used with indirect heating by a direct current (a heating wire of manganan is wound on the lacquer-coated body of the thermoresistor). The accuracy of recording is 3%; sensor

L 23381-65

ACCESSION NR: AR5002531

inertia is 1-30 sec. The maximum linear dimension is not more than 15 mm. Velocity fluctuations are recorded using a corner sensor of 2 nickel wires 100 $\mu$  in diameter which are stretched at right angles to one another. The sensor is used to measure the angle of deviation of the velocity vector from the axis of the sensor in the plane of the wires and also the instantaneous velocity; the components are computed from the angle and modulus of velocity. With the sensor in a vertical position it is possible to record the vertical fluctuations; when in a horizontal position -- the transverse fluctuations. Sensitivity of the sensor is about 1 mm/sec. per 1 mm of the record; inertia is about 0.01 sec. Temperature was measured by a group of thermocouples or by a MT-54 thermistor; sensitivity of the temperature sensors is 0.005 /mm. All data obtained under field conditions were analyzed in the office using semiautomatic correlators. The described apparatus was used for a study of mixing in shallow water (in the Liyelupe River). The derived data characterize the turbulent system of discharge and wind currents in a river under homogeneous thermal conditions. K. Chernoskutov.

SUB CODE: ES

ENCL: 00

Card 2/2



PROCESSES AND PROPERTIES INDEX

Investigation of the Alloys of the Ternary System Copper-Nickel-Lead.  
V. A. Nemilov and T. A. Strunina (Zhur. Priklad. Khim., 1948, 19, (5, 6),  
449-460). (In Russian). Thermal analyses and hardness measurements

2

were carried out along three sections having const. copper; nickel ratios (1;1, 4;1, and 1; 2) and two sections having const. lead contents (60 and 30 at.-%). The liquidus surface and hardness/composition curves were constructed. Segregation in the ternary copper-lead and nickel-lead systems. All alloys lying outside these regions of segregation consist of two phases: a soft, lead-rich one and a hard, nickel-copper one. NA

ASME 5.6 METALLURGICAL LITERATURE CLASSIFICATION

7

C. 4

Investigation of the system palladium silver nickel. V. A. Nemilov and T. A. Strunina. *Izvest. Sektsiya Platinov i Drugikh Blagorod. Metal., Inst. Obshchei i Neorg. Khim., Akad. Nauk S.S.S.R.* No. 24, 15-25 (1949). --This system had 3 distinct fields. The field of ternary solid solns. extended from the Pd corner (apex on a triangular diagram) down to approx. 75% Pd and then in 2 narrow strips running along the Pd-Ag and Pd-Ni lines. A relatively large field of sepn. in the liquid state extended from the Ag line (base of triangle) narrowing upward to approx. 45% Pd. Between these 2 fields was a field of heterogeneous mixts. Details of thermal analysis, microstructure, electroresistance, and hardness are tabulated and presented graphically. M. Hirsch

STRUNINA, T. A.

Strunina, T. A. (Chemistry) The works of V. A. Nemilov on equilibria of metals. P. 97

Laboratory of Metallography  
Jan. 17, 1951

SO: Herald of the Moscow University, Series on Physics-Mathematics and Natural  
Sciences, No. 3, No. 5, 1951

STRUNINA, T. A.

Chemical Abst..  
Vol. 48 No. 5  
Mar. 10, 1954  
Metallurgy and Metallography

Investigation of the system copper-nickel-palladium  
V. A. Nemilov and T. A. Strunina. *Izv. Akad. Nauk S.S.S.R. 26, 26-33(1951).*—A study of 46  
different comps. of the system, Cu-Ni-Pd, resulted in the  
establishment of liquidus lines for const. percentages of Pd.  
Charts show the effect of increasing the Ni content on  
hardness, elec. resistance ( $\rho_{20}$ ), and the temp. coeff. of elec.  
resistance ( $\alpha_{20-100} \times 10^3$ ) for constant percentages of Pd.  
Photomicrographs of several alloys are included as well as  
a compn. diagram of the system. I. R. Behrman

STRUNINA, T.A.

Investigation of the alloys of palladium with silicon.  
A. T. Ginz'ev, T. A. Strunina, and A. S. Anisimova (St. V.  
Lomonosov State Univ., Moscow). *Izvest. Sektora Platin.*  
*Dolg. Blagorod. Metal. Izv. Obshchest. i Neorg. Khim.*  
*Akad. Nauk S.S.S.R.* No. 27, 210-23 (1952).—Alloys from  
7.2 to 82.01 at. % Si were studied by thermal analysis,  
microstructure, and hardness. The alloys were prepd. with  
Pd pptd. by Na formate from a soln. of HCl and with Si  
contg. 0.95 wt. % Fe. Fifteen-g. melts were made in corun-  
dum crucibles under  $\text{BaCl}_2$  slag in a Kryptol furnace. For  
analysis, the alloys were pulverized and dissolved by heating  
in aqua regia. The Pd dissolved but the Si remained in the  
finely divided state, partly as  $\text{SiO}_2$ . The soln. was twice  
evapd. almost to dryness with HCl to remove oxides of N.  
The residue was treated with dist.  $\text{H}_2\text{O}$  and filtered. The  
Pd was pptd. from the neutral soln. by reduction with Na  
formate in the presence of  $\text{NaOAc}$ . The Pd was filtered  
off and dried at 118 to 120°. Si was detd. by difference.  
Thermal analyses were made with a Kurnakov pyrometer  
and Pt-Rh thermocouples and the results showed that the  
equil. diagram consisted of 3 regions of eutectic reaction  
sepd. by the compds.  $\text{Pd}_3\text{Si}$  and  $\text{PdSi}$ . The eutectic  
temps. and compns. were: 800°, 18 at. % Si; 720°, 45;  
840°, 58. The m.p. of  $\text{Pd}_3\text{Si}$  was 1250° and of  $\text{PdSi}$  was  
1100°. Microstructures of cast and annealed (7 days at  
700°, cooled during 6 days) alloys were etched with hot 20%  
aqua regia. The structure of the annealed 56.95 at. % Si  
alloy showed large Si crystals rather than the expected eu-  
tectic structure. The Vickers hardness (10 kg.) of the Pd-  
rich alloys increased with Si content as follows: 0 at. %  
Si, 60 kg./sq. mm.; 7.20, 234.5; 14.40, 364.5; 32.00, 465.0.  
A. C. Guy

STRUNING, T.A.

Investigation of alloys of the system aluminum-palladium. V. A. Nemilov, A. T. Grigor'ev, and T. A. Strunina. *Izvest. Sektora Platin i Drug. Blagorod. Metallov*, 1954, No. 28, 256-9. This was the first expl. study of this system. Twenty three alloys, ranging from 2 to 96.5 at % Pd were prepd. from refined Pd and from Al contg. 0.001 wt. % impurities by melting in a Kryptol furnace in a corundum crucible under a slag of KCl and NaCl for the Al-rich alloys and of dehydrated BaCl<sub>2</sub> for the Pd-rich alloys. Data from cooling-curve detns. and chem. analysis were used to construct an equil. diagram. There was a eutectic reaction involving Al or its dil. solid soln. and Al<sub>3</sub>Pd at 630° and 7 at. % Pd, a peritectic involving Al<sub>3</sub>Pd and Al<sub>2</sub>Pd at 704° and 25%, a peritectic involving  $\alpha$ -AlPd and Al<sub>3</sub>Pd at 910° and 40%, a phase change from  $\alpha$ -AlPd to  $\beta$ -AlPd at 1045°, a peritectic involving  $\beta$ -AlPd and the  $\gamma$ -solid soln. contg. about 78 at. % Pd at 1300° and 60%, and a region of solid-soln. formation of the  $\gamma$  solid soln. of Pd ranging from the

m.p. of Pd down to 1311°, from liquid compos. of 100% to about 45%, and from  $\gamma$  compos. of 100% to about 78%. Solid soln. formation was not studied in Al-rich alloys but occurred in the  $\gamma$ -phase. The compos. of  $\gamma$  was estd. to decrease to 85 at. % Pd at 300°. Microscopic examn. was made of alloys homogenized for 8 hrs. at 900° (Pd-rich) or for 10 hrs. at 550° (Al-rich) and cooled during about 25 hrs. to room temp. Etching of the Pd-rich alloys was with 4% nitral and of the Al-rich alloys was with an aq. soln. of 1% HNO<sub>3</sub> + 1% HCl + 1% HF. The micrographic results agreed well with the cooling-curve data, however, some anomalies were observed in the Pd-rich alloys and it was concluded that addnl. work was needed on the Pd-rich half of the diagram. X-ray studies showed that Al<sub>3</sub>Pd had an orthorhombic structure with  $a = 7.07 \pm 0.005$ ,  $b = 7.51 \pm 0.005$ ,  $c = 5.07 \pm 0.005$  kX. Al<sub>2</sub>Pd was hexagonal with  $a = 4.209 \pm 0.001$  and  $c = 5.168 \pm 0.002$ .  $\beta$ -AlPd was body-centered cubic of the CsCl type with  $a = 3.045 \pm 0.0008$ .  $\alpha$ -AlPd was hexagonal with  $a = 3.951 \pm 0.001$  and  $c = 5.603 \pm 0.002$ . A. G. Guy

SOV/32-25-9-24/53

13(7)

AUTHORS:

Strunina, Ye. M., Petrova, M. N.

TITLE:

Application of the Method of Magnetic Metallography for an Investigation of the High-speed Steel R18

PERIODICAL:

Zavodskaya laboratoriya, 1959, Vol 25, Nr 9, pp 1092-1093 (USSR)

ABSTRACT:

For the determination of the residual austenite in R18-steel the method of magnetic metallography suggested in reference 1, was applied. The method is based on the fact that colloidal magnetic particles which are applied to the ground section in the form of a paste are accumulated at the ferromagnetic phases while the nonmagnetic phases remain free. Austenite and the carbide phase of R18-steel are nonmagnetic and therefore remain free of colloidal particles; however, they can be distinguished from one another as they exhibit different structures. Test results showed that up to 30% of the residual austenite is present in the microstructure of a steel tempered at 1,280°. After treble drawing at 560° there is no more austenite visible in the steel (Fig 2). On tempering at 1,310° the residual amount of austenite is considerably increased. Determinations of the residual austenite were also made on finished cutters, and it was established that among other

Card 1/2

SOV/32-25-9-24/53

Application of the Method of Magnetic Metallography for an Investigation  
of the High-speed Steel R18

things the low strength of the cutters investigated was due  
to the presence of considerable amounts of residual austenite.  
There are 2 figures and 3 Soviet references.

Card 2/2



PAKHTINA, S. S.; STRONINA, Z. A.

Dyes and Dyeing

Dyeing cotton and staple fiber with cold dyes.

Tekst. prom. 12, No. 7, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952. UNCLASSIFIED.

RAKHLINA, S.S.; KOZLOVA, L.P.; STRUNINA, Z.A.

Light-fast dyeing of shirting in khaki. Nauch.-issl.trudy  
TSNIIKHBI '60 [publ. '62]:163-169. (MIRA 18:2)

RAKHLINA, S.S., starshiy nauchnyy sotrudnik; STRUNINA, Z.A., mladshiy  
nauchnyy sotrudnik; KOZLOVA, L.P., mladshiy nauchnyy sotrudnik

Ways of increasing the light-fastness of fabrics dyed with  
indigosol and vatsol dyes. Tekst.prom. 22 no.2:56-59 F '62.  
(MIRA 15:3)

1. TSentral'nyy nauchno-issledovatel'skiy institut khlopchatobu-  
mazhnoy promyshlennosti.

(Dyes and dyeing)

L. M. A. V. N.

"Three-Dimensional Boundary Layer of an Arbitrary Surface"

A paper presented at the 9th International Congress of Applied Mechanics, Brussels, 5-13, Sep 56

STRUNJAK, K.

② Compounds of the Group V elements with mercury. II. Mercury arseno-iodide  $Hg_2AsI_4$  and mercury antimonio-iodide  $Hg_2SbI_4$ . D. Grdenić, K. Strunjak, and H. Dedić (Univ. Zagreb, Yugoslavia). *Trav. Inst. 27*, 69-85 (1955) (in English); *U. C.A.* 48, 0855c. — The prepn., analyses, and properties of new compds.  $Hg_2AsI_4$  (I) and  $Hg_2SbI_4$  (II) are given. For prep. I, 2.3 g.-atoms of Hg and 1 mole of  $AsI_3$  were heated 10 hrs. in a sealed hard-glass tube 1 cm. in diam. and 25 cm. long, air having been previously displaced by dry  $CO_2$ . Heating at  $250^\circ$ , with a third of the tube in an Al block, produced on the upper parts of the tube crystals of  $Hg_2I_4$  and  $HgI_2$  mixed with small amts. of a brown undefined powder and drops of Hg, and at the bottom reddish brown crystal agglomerates of I. By heating the latter in a sealed glass tube as before, pure I was obtained. For prep. II, 2.5 g.-atoms Hg and 1 mole of  $SbI_3$  were used in the same way as with I. The temp. of the Al block was first maintained 1 hr. at  $210^\circ$ , then 4 hrs. at  $300-10^\circ$ . As a result, there were obtained Hg iodides, drops of Hg, small amts. of an undefined brown product, and at the bottom a black cryst. cake of II, which, purified as in the case of I, gave sintered crystal agglomerates of II. Chem. analyses of several purified preps. of I and II agree with the formulas given. Crystals

(H.C.L.)

Met

of I and II are dark gray, nearly black with a violet tinge, on I or dark gray in the transmitted light. X-ray investigation of II gave  $a = 21.22 \text{ \AA}$ ,  $c = 8.09 \text{ \AA}$ , the crystals being tetragonal. Calcd.  $d$  is  $5.52 \text{ g./cc.}$ ; piezometrically  $d$  is  $5.41 \text{ g./cc.}$  I and II do not change upon treatment with cold  $\text{H}_2\text{O}$  or acids, but are quickly destroyed by warm concd.  $\text{HNO}_3$  or  $\text{H}_2\text{SO}_4$ , in the latter case yielding iodine, and blacken in  $\text{HCl}$ . I blackens upon short exposure to daylight, but this effect is limited to a thin surface layer only. Neither I nor II is sensitive to air at room temp., they ignite on heating, yielding  $\text{HgI}_2$  and  $\text{I}_2$ , and As or Sb oxide. Both I and II are destroyed by warm  $6N \text{ KOH}$ , with no gas evolution, leaving a gray powdery residue contr. the total amt. of  $\text{Hg}$ . The total amt. of I and half of the total amt. of As or Sb were in the alk. soln., the other half remaining in the residue in elementary state mixed with  $\text{Hg}$ . It is postulated that atoms of As or Sb together with  $\text{Hg}$  atoms form in the unit cells of I or II tridimensional polymeric octahedra, sharing all corners. The remaining cubooctahedral cavities accommodate the large iodo-arsonium or iodo-stibonium ions. S. Flaydie

MODRIC, A.; STRUNJAK, R.

Effectiveness and virulence of some autochthonous varieties of  
*Rhizobium trifolii*. *Zemljiste biljka* 12 no.1 '3:311-31' Ja-D '63.

1. Agricultural Faculty of the University of Zagreb, Zagreb-  
Maksimir.

S/064/60/000/03/19/022  
B010/BC08

AUTHORS: Strunkin, M. G., Gayevoy, V. I.

TITLE: Improvement of the Pneumatic Regulation Valve<sup>3</sup> of the  
Type PK (PRK)<sub>2b</sub>

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 3, pp. 260-261

TEXT: An improvement of the pneumatic regulation valves of the types PK-2-6 (PRK-2-6) "V0" ("V0") and "V3" ("VZ") is suggested in order that they may also be used for the regulation of smaller amounts of gas or for cutting off the gas flow. The alterations which are schematically shown in Figs. 1 and 2 consist, in principle, of the following: The point of the valve needle is built as a cone (instead of bilaterally tapered), the diameter of the upper part being reduced. The valve seat is detachable, and a gasket of synthetic material is fitted, so that the valve needle can be pressed tightly to the valve seat and the gas flow can be cut off completely. The stuffing box is slightly altered, the housing being elongated and the base box built as a hollow cylinder. There are 2 figures. ✓C

Card 1/1



STRUMKIN, V. A.

"Oscillations of Disks in Gas Turbine Engines." Cand Tech Sci, Kazan' Aviation Inst, Kazan', 1954. (RZhMekh, Nov 54)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (11)

SC: Sum. No. 521, 2 Jun 55

AUTHOR: Strunkin, V.A.

SOV/147-58-1-20/22

TITLE: On the Oscillations of Non-uniformly Heated Turbine Discs  
(O kolebaniyakh neravnomerno nagretykh diskov turbomashin)

PERIODICAL: Izvestiya vysshikh Uchebnykh Zavedeniy,  
Aviatsionnaya Tekhnika, 1958, Nr 1, p. 105 - 170 (USSR).

ABSTRACT: In oscillation calculations on discs, it is essential to take into account the effect of internal stresses, caused both by the rotation of the disc and by its non-uniform temperature field. This paper investigates the oscillations of rotating, non-uniformly heated discs of constant thickness. The problem is solved by the energy method. It is shown that the critical frequency of a rotating non-uniformly heated disc is less than or equal to that of a stationary uniformly heated disc. For relatively thin discs with a large coefficient of linear expansion, the critical frequencies of uniformly and non-uniformly heated discs can be significantly different, which must be taken into account in determining their natural frequencies.

Card1/2

SOV/147-58-1-20/22

On the Oscillations of Non-uniformly Heated Turbine Discs

There are 3 figures and 3 tables.

ASSOCIATION: Kafedra aviatsionnykh lopatochnykh mashin, Kazanskiy  
aviatsionnyy institut (Chair of Aviation Turbines,  
Kazan Aviation Institute)

SUBMITTED: October 26, 1957

Card 2/2

1. Turbine wheels--Oscillations    2. Oscillations--Mathematical  
analysis    3. Turbine wheels--Temperature effects

AUTHOR: Strunkin, V.A. ('Kazan') SOV/24-58-11-24/42  
TITLE: The Axial Oscillations of Discs in Axial-flow Compressors  
and Turbines (K maschetu aksial'nykh kolebaniy diskov  
osevykh turbin i kompressorov)  
PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh  
Nauk, 1958, Nr 11, pp 100 - 102 (USSR)  
PERIODICAL: The expressions for the natural frequencies in radial  
bending are thrown into a more convenient form by appropriate  
choice of variables. The coefficients in the series  
that result from integrating the expressions for the  
kinetic and potential energies by parts are given in the  
table; tables of the potential and kinetic energy functions  
can be compiled from these figures.  
An unevenly heated disc is then considered; the strain  
energy stored is calculated in terms of the radial and  
circumferential stresses; the corresponding energies are  
given by the last two equations in the paper.  
The oscillations of bladed discs are then considered in  
a general (non-mathematical) fashion.

Card 1/2

SOV/24-58-11-24/42  
The Axial Oscillations of Discs in Axial-flow Compressors and  
Turbines

There are 1 figure, 1 table and 3 references, 2 of which  
are Soviet and 1 English.

SUBMITTED: May 27, 1957

Card 2/2

S/123/60/000/02/12/015

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1960, No. 2,  
p. 285, # 7194

AUTHOR: Strunkin, V. A. 23

TITLE: Rating the Bend of Turbine Engine Disks 26

PERIODICAL: Tr. Kazansk. aviats. in-ta, 1958, No. 40, pp. 53-62

TEXT: The author describes a method of rating the axially-symmetric bend of disks under the effect of outer loads and non-uniform heating of the disk along the radius. The tension effect on the bend is not taken into account, temperature variations along the radius are assumed to be linear. The differential equation of the bend is written down for plates of constant thickness and is solved separately for the outer loads and for the non-uniform heating of the disks along the radius. The disk profile is broken up into the necessary number of sections of constant thickness, for each of which the magnitude of bending moments and deformation are determined.

G. I. N.

✓B

Card 1/1

SOV/147-59-2-20/20

AUTHOR: Strunkin, V.A.

TITLE: Criticism of the Article by A.M.Soyfer and V.N.Buzitskiy  
"On the Normal Stresses Arising in the Torsional  
Oscillations of a Blade" (Kritika i bibliografiya.  
Po povodu stat'i A.M.Soyfera i V.N.Buzitskogo  
"O normal'nykh napryazheniyakh, vznikayushchikh pri  
krutil'nykh kolebaniyakh lopatki")

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Aviatsionnaya  
tekhnika, 1959, Nr 2, pp 159-163 (USSR)

ABSTRACT: The problem of torsional oscillations of blades in  
axial compressors and turbines is not as expertly  
explained as the problem of transverse (bending)  
oscillations, the reason being that the former are  
evoked by small forces and result in only small stresses.  
The authors of the criticised article arrive at a  
different conclusion, viz: that "normal stresses arising  
in torsional oscillations are comparable with and, in  
certain cases, even substantially larger than the normal  
stresses produced in bending". This conclusion would

Card 1/4

SOV/147-59-2-20/20

Criticism of the Article by A.M.Soyfer and V.N.Buzitskiy  
"On the Normal Stresses Arising in the Torsional Oscillations of  
a Blade"

be a very important one if it were true. However, the low level of the experimental technique and the presence of errors in the article do not allow acceptance of these findings of the authors. After questioning the work, reasoning and theoretical basis of the above conclusions (there are in all some 13 queries) the present author advances some original explanations of the work carried out by the previous authors (which was left unanswered in their article). This is done on an example of a blade (fixed at one end) of a constant cross-section along its whole length and being acted upon by a uniformly distributed twisting moment. By Ref 3, the differential equation of torsion is given on p 160,  $EI_\omega$  being flexural-torsional rigidity and  $GI_T$  - being free torsion rigidity. Its solution, as well as the normal stress  $\sigma_z$ , are then quoted and this stress is then presented in the form of graphs (Fig 1) for various values of the

Card 2/4



SOV/147-59-2-20/20

Criticism of the Article by A.M.Soyfer and V.N.Buzitskiy  
 "On the Normal Stresses Arising in the Torsional Oscillations of  
 a Blade"

parameter  $k = \sqrt{\frac{GI_T \ell^2}{EI_\omega}}$  which characterises the strength

of the blade; (the graph gives the relative values of the stress, i.e. referred to the stress at the root). Next, the corresponding formulae for  $\theta$  and  $\theta''$  for the case of the first mode of torsional oscillations is quoted from Ref 4 and utilizing the latter the normal stresses  $\bar{\sigma}_{zz}$  are obtained (Fig 2) for various values of  $k$ . From the analysis of these curves it is seen that even in the case of a uniform blade maxima of stresses may be expected and what is more there are sections (other than the free end) where the normal stress vanishes. The actual position of that section depends upon the parameter  $k$ . To explain this phenomenon, Fig 3 is used representing  $\theta = f(x)$ . The dotted curves apply to the limiting cases  $EI_\omega = 0$  and  $GI_T = 0$  (i.e.  $k = \infty$  and  $k = 0$ ).

Card 3/4

For any finite value of  $k$  there will be a point of

SOV/147-59-2-20/20

Criticism of the Article by A.M.Soyfer and V.N.Buzitskiy  
"On the Normal Stresses Arising in the Torsional Oscillations of  
a Blade"

inflection  $M$ , as shown on the full line graph for  
 $k = 5$ ; this point corresponds to  $\theta'' = 0$ , i.e.  $\sigma_z = 0$ .  
Though in blades with variable cross-sections the  
stresses will differ from the above distribution for  
a constant cross-section blade, the character of the  
stresses, however, may be expected to be similar.  
There are 3 figures and 4 Soviet references.

ASSOCIATION: Kazanskiy aviatsionnyy institut, Kafedra  
aviatsionnykh turbomashin (Kazan' Institute of  
Aeronautics, Chair of Aircraft Turbines)

SUBMITTED: December 2, 1958

Card 4/4

STRUNKIN, V.A.

Design of a high-pressure centrifugal compressor. Izv. vys. ucheb.  
zav.; av. tekhn. 2 no.1:105-110 '59. (MIRA 12:3)

1. Kazanskiy aviatsionnyy institut, Kafedra aviatsionnykh  
lepatotnykh mashin.

(Compressors)

ZHIRITSKIY, Georgiy Sergeyevich; ~~prof.~~ LOKAY, Viktor Iosifovich;  
MAKSUTOVA, Makhfuzya Karimovna; STRUNKIN, Valentin  
Aleksandrovich; GUROV, A.F., doktor tekhn. nauk, prof.,  
~~retsensent~~; KHOLSHCHEVNIKOV, K.V., doktor tekhn. nauk,  
prof., retsensent; KULAGIN, I.I., doktor tekhn. nauk, prof.,  
retsensent; LEPESHINSKIY, I.A., inzh., red.; BOGOMOLOVA,  
M.F., red.izd-va; NOVIK, A.Ya., tekhn. red.

[Gas turbines of aircraft engines] Gazovye turbiny aviatsion-  
nykh dvigatelei. Moskva, Oborongiz, 1963. 604 p.

(MIRA 16:9)

(Gas turbines) (Airplanes—Engines)

AM4008915

processes in gas turbines (different modifications), thermodynamic and gas dynamic calculations for nominal and variable operating conditions, cooling systems used for the hot parts of the turbine, turbine design and construction, and strength calculations. The book is based on a 1950 text "Aviation Gas Turbines" by Professor G. S. Zhiritskiy, on work by Soviet and other scientists, and on findings of the Turbine-Machinery staff of the Kazan Aviation Institute, who rendered great help in planning the book. The authors are also grateful to Professors A. F. Gurov, I. I. Kulagin, and K. V. Kholshchevnikov for many useful hints during the review of the book.

TABLE OF CONTENTS [abridged]:

Foreword - - 3  
List of symbols - - 5  
Introduction - - 9

Card 2/5

ACCESSION NR: AR4015642

S/0081/63/000/022/0361/0361

SOURCE: RZh. Khimiya, Abs. 22K24

AUTHOR: Tseytlin, Kh. L.; Strunkin, V. A.; Fayngol'ts, L. L.; Sorokin, Yu. I.; Babitskaya, S. M.; Zal'tsman, T. D.

TITLE: Chemical stability of titanium in some corrosive media

CITED SOURCE: Vestn. tekhn. i ekon. inform. N.-1. in-t tekhn.-ekon. issled. Gos. kom-ta po khimii pri Gosplane SSSR, no. 3, 1963, 30-32

TOPIC TAGS: titanium, titanium chemical stability, corrosion, corrosion resistance, titanium corrosion, halogen, halogen corrosion, chlorination, bromination

TRANSLATION: Experimental data are given on the rate of Ti corrosion in the presence of free halogens and in the halo acids and sulfuric acid containing free halogen. Areas of application of Ti in the chemical industry are pointed out. Ti is recommended as a construction material for equipment designed for chlorination in an HCl medium at concentrations up to 20% and temperatures up to 60C, in the presence of less than 3 g free Cl<sub>2</sub> per liter HCl. Ti tips are used on

Card 1/2

ACCESSION NR: AR4015642

thermocouple casings for the chlorination of organic compounds in 18% HCl at 60-65C, and in the dehydration of maleic acid. Ti-equipment is recommended for the bromination of organic compounds in a water medium at 0-3C (pH~1) and a rapid course of reaction. Free halogens, Na nitrite, and some other additives decrease Ti corrosion in the hydrogen halides and sulfuric acid. The protective effect of halogens decreases sharply with a temperature increase to 60-90C, and with increased concentration and prolonged action of the corrosive medium. 29 references. N. Lukashina

DATE ACQ: 07Jan64

SUB CODE: CH, ML

ENCL: 00

Card 2/2

L 16592-65 ENT(m)/EWA(d)/ENP(t)/ENP(b) IJP(c)/ASD(f)-2/ASD(m)-3 JD/WB/MLK

S/0000/64/000/000/0144/0149

ACCESSION NR: AT4048064

AUTHOR: Babitskaya, S.M., Strunkin, V.A., Zal'tsman, T.D., Sorokin, Yu. I. B+1

TITLE: Chemical stability of titanium in some aggressive media and the areas for its application in the chemical industry <sup>27</sup>

SOURCE: Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego spлавov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium); trudy\* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 144-149

TOPIC TAGS: titanium, titanium chemical stability, titanium corrosion, organic acid, chemical industry <sup>27</sup>

ABSTRACT: Tests over a wide range of temperatures and  $H_2SO_4$  concentrations showed that chlorine consistently retards the corrosion of titanium, which increases rapidly with temperature (see Fig. 1 of the Enclosure). In the presence of chlorine, corrosion also increases rapidly with  $H_2SO_4$  concentration, but in its absence the corrosion rate passes through maxima at about 40 and 80%  $H_2SO_4$ . The authors then went on to study corrosion by organic acids, which are weaker than the mineral acids, since such organic acids as acetic acid, formic acid, oxalic acid, maleic acid, phenoxyacetic acid and

Card 1/3



L 16592-65

ACCESSION NR: AT4048064

several others strongly corrode cast iron, steel and other metals. Tests with titanium showed strong corrosion in oxalic acid (100 mm/year, or the same as in 20% hydrochloric acid). Low stability of titanium was also noted in formic acid, tartic acid and citric acid, as well as in mixtures of glacial acetic acid with acetic anhydride. Strong corrosion of titanium was observed in hot solutions of oxalic acid and tartaric acid, while the highly aggressive properties of citric acid are explained by the solubility of the compounds in water. These results indicate new possibilities for the use of titanium equipment where hydrochloric, hydrobromic, hydroiodic and sulfuric acids containing free halogens participate in chemical reactions. Titanium tips are employed on thermocouples working in chlorination processes. Laboratory tests have shown the harmful action of alternating current on titanium in acid solutions, but a titanium bubbler has been working successfully in the production of chlorine. It is also advisable to use titanium for the treatment of organic substances with bromine in water. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 15Jul64

ENCL: 01

SUB CODE: IC, GC

NO REF SOV: 004

OTHER: 006

Card<sup>2/3</sup>

L 16592-65

ACCESSION NR: AT4048064

Corrosion rates mm/year

ENCLOSURE: 01

H<sub>2</sub>SO<sub>4</sub> concentration, %

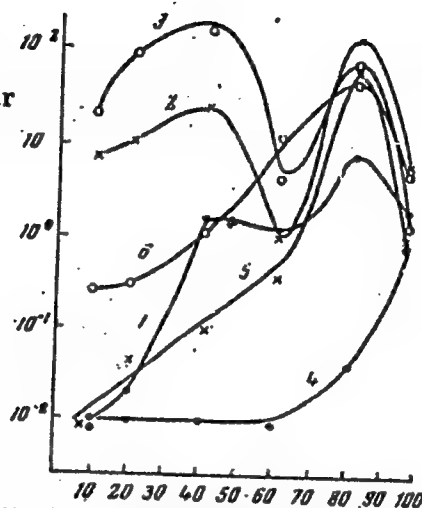


Fig. 1. Effect of chlorine on titanium corrosion by sulfuric acid: 1 - at 20C without chlorine; 2 - at 60C without chlorine; 3 - at 90C without chlorine; 4 - at 20C with chlorine; 5 - at 60C with chlorine; 6 - at 90C with chlorine.

Card 3/3

L 15660-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) ASD-3/AFFTC/ESD-3/IJP(c)/Pa-4/ASD(f)-2/  
ASD(m)-3 JD/WR/MLK

ACCESSION NR: AT4048065

S/0000/64/000/000/0150/0159

AUTHOR: Tseytlin, Kh. L.; Fayngol'd, L. L.; Strunkin, V. A.

B+1

TITLE: Chemical stability of titanium in halo acids and halogens'

SOURCE: <sup>27</sup>Soveshchaniye po metallurgii, metallovedeniyu i primeneniyu titana i yego  
splavov. 5th, Moscow, 1963. Metallovedeniye titana (Metallography of titanium);  
trudy\* soveshchaniya. Moscow, Izd-vo Nauka, 1964, 150-159

TOPIC TAGS: titanium, titanium corrosion, titanium chemical stability, halogen,  
titanium halide, nitro compound <sup>18</sup>

ABSTRACT: Halogens generally increase the corrosion of iron, copper, nickel, lead and other metals in hydrochloric acid. Only tantalum, a very costly and rare metal, has high stability, although titanium has sufficient stability in hydrochloric acid up to a concentration of 5%. The present paper considers the effect of halogens on the chemical stability of titanium in halo acids. Titanium corrodes insignificantly in halo acids at room temperature, but at 90C corrosion reaches tremendous proportions (about 400 mm/year in hydrochloric acid and 72 mm/year in hydrobromic acid). In all cases, addition of halogens to hydrochloric and hydrobromic acids was found to lower the corrosion rate of titanium, although increasing the temperature lowered the protective capacity of the halogens. Chlorine,  
Card 1/3

L 15660.65

ACCESSION NR: AT4048065

bromine and iodine decreased the corrosion of titanium to the same degree. The view that titanium reacts with chlorine, bromine and iodine only at high temperature is incorrect, since several recent publications have reported that titanium reacts rapidly with chlorine at room temperature and even at -18C. Tests by the authors showed that VT1 titanium sheets ignite in chlorine gas at room temperature after 24 hours. Strong corrosion was observed with iodine at 60C, while titanium did not corrode after 500 hours at room temperature. Other tests indicated that titanium reacts rapidly with both dry liquid bromine and moist bromine, although it has high stability in aqueous solutions of bromine up to 90C. Ignition of titanium occurs when the reaction is highly exothermic and proceeds at a high rate, when the final products of the reaction are gases and when the reaction is autocatalytic. The formation of  $TiCl_4$ ,  $TiBr_4$  and  $TiI_4$  liberates large quantities of heat. Some publications have noted that aromatic nitro compounds increase the corrosion of iron, copper, lead, aluminum and their alloys by electrolytes. This is explained by the depolarization of nitro compounds during the process. No data are available in this respect about titanium. Tests by the authors showed that almost all nitro compounds sharply lower the corrosion rate of titanium by hydrochloric acid up to 60C, but at 80C this process changes and the protective action is observed only in the presence of o-nitrotoluene, o-nitrophenol, m-dinitrobenzene and 1,2,4-di-nitrochlorobenzene. The concentration of nitro compounds in 6 N HCl has a marked effect on titanium corrosion at 60C. Orig. art. has: 6

Card 2/3

L 15660-65

ACCESSION NR: AT4048065

figures and 3 tables.

ASSOCIATION: none

SUBMITTED: 15Jul64

ENCL: 00

SUB CODE: MM

NO REF SOV: 024

OTHER: 012

Card 3/3

SKULACHNEVSKIY, Gleb Semenovich; TUMANSKIY, S. K., doktor tekhn. nauk, retsenzent; ZHIRITSKIY, G. S., doktor tekhn. nauk, prof., retsenzent; STRUNKIN, V. A., kand. tekhn. nauk, dots., retsenzent; SHTOEA, A. V., prof., nauchn. red.; FOFOV, A. V., red.

[Aircraft gas turbine engines; design and construction of parts] Aviatsionnye gazoturbinnye dvigateli; konstruktotsiya i raschet detalei. Izd. 2., perer. i dop. Moskva, Mashinostroenie, 1965. 451 p. (MIFA 19:1)

1. Chlen-korrespondent AN SSSR (for Tumanskiy).

STRUNKIN, V A

7 18  
Effect of water-vapor concentration on the corrosion of  
metals by chlorine. Kh. L. Tsel'tsin and V. A. Strunkin.  
Zhur. Prikl. Khim. 29, 1864-73 (1956); Ch. C.A. 30,  
12790c. The max. temp. at which the following metals  
were satisfactorily resistant to Cl contg. 1.5 and 3% H<sub>2</sub>O  
vapor were detd.: Al 200, 425; Armco Fe 310, 375; C-  
steel 285, 375; cast iron 285, 375; stainless steel (1Cr-  
18Ni-9Ti) 450, 475; Cr 17 450, 475; Ni 475, 475; Pb 225, 18  
225; Ta 375, 400. The min. temps. of satisfactory resist-  
ance were 130° for Al, Ni, and stainless steel; 150° for Pb,  
Fe, C steel, and cast iron; and 110° for Ta. Cu corroded  
appreciably above 130°. Ni was the most stable metal up  
to 475° to Cl contg. some moisture. Stainless steel was as  
resistant as Ni but it failed locally. The duration of the  
test is an important factor in the evaluation of corrosion  
resistance: Ta begins to react violently only after 35 min.  
at 450°, whereas at 500° it reacts instantly; cast iron in dry  
Cl at 240° reacts violently only after 3.5 hrs. and instantly  
at 280°.

I. Benconitz

RM PG  
MT

15  
4E2c-1

STRUNKIN V.A.

Distr: 4E43

2907

CORROSION OF METALS BY HYDROGEN SULFIDE AT HIGH TEMPERATURES. Kh. L. Tseitlin, L. V. Merzlova, and V. A. Strunkin (Inst. of Organic Semi-Products and Dyestuffs). Zhur. Priklad. Khim. 30, 1553-8 (1957) Oct. (In Russian)

Dry hydrogen sulfide induced considerable corrosion in carbon steel at 250°C temperature with a sharp increase at 500°C. The corrosion of stainless steel began at 360°C, and Al-Fe and Al-Cu-Fe alloys at 500°C. The corrosion of Cu began at 170°C. In some cases water vapor slowed down the corrosive effects of hydrogen sulfide at high temperatures. A strong dilution of hydrogen sulfide with nitrogen weakens its corrosive effects on stainless steel and copper; however, this does not hold at a temperature of 500°C. At high temperature steels and steel alloys corrode faster in dry chloride than in dry hydrogen sulfide, while in presence of water vapors the picture is reversed. (R.V.J.)



AUTHORS:

Tseytlin, Kh. L., Sel'tser, A. S.,  
Zemlyanitskaya, N. N., Strunkin, V. A., Merzloukhova, L. V.

TITLE:

Corrosion Determinations in Ampoules (Korrozionnyye opredeleniya  
v ampulakh)

PERIODICAL:

Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 7,  
pp. 898 - 899 (USSR)

ABSTRACT:

Of late glass ampoules are used for corrosion investigations of steel; the former make it possible to carry out several experiments at the same time, which fact is especially favorable in the case of small sample quantities, and in the determinations of rare metals, as well as of expensive and dangerous reagents. In the laboratory mentioned below an apparatus was constructed on this basis, which serves for the determinations of chemically resistive, rare metals in hydrochloric acid. The apparatus consists of a heatable steel drum with a steeltube grid into which eight steel shells for the glass ampoules are put. 40 ml liquid and two samples each were put into each ampoule; then they were put in a sealed state into the apparatus which was rotated by a reducing gear. After the experiment the ampoules are broken up. Corrosion experiments with tantalum in hydrochloric acid

Card 1/2

Corrosion Determinations in Ampoules

SOV/32-24-7-54/65

or in hydrochloric acid saturated with chlorine, or in HCl with an addition of hydrogen peroxide were carried out at 100 - 110°. On this occasion a corrosion rate of less than 0,005 g/m<sup>2</sup>.hour was found. Thick-walled ampoules were also used for the determinations of nickel, copper, aluminium and other metals in molten AlCl<sub>3</sub> at 200°. The experiments with this apparatus must be carried out taking into account all precautionary methods known in the technique. There are 2 figures.

ASSOCIATION: Institut organicheskikh poluproduktov i krasiteley im.K.Ye. Voroshilova (Institute of Organic Semiproducts and Dyes imeni K.Ye.Voroshilov)

Card 2/2

TSEYTLIN, Kh.L.; STRUNKIN, V.A.

Effect of the dilution of chlorine with nitrogen on corrosion of  
metals at high temperatures. Zhur.prikl.khim. 31 no.12:1843-1849  
D '58. (MIRA 12:2)

1. Institut organicheskikh poluproduktov i krasiteley imeni K.Ye.  
Voroshilova.  
(Chlorine) (Nitrogen) (Corrosion and anticorrosives)

S/ 11/60/000/C-0101/015  
A-61/A111

AUTHORS: Konyushenko, A.T., Golovkin, R.V., Tseytin, Kh.A., Strankin, V.A.

TITLE: Resistance of Welded Titanium Pipes in Hydrochloric Acid Saturated with Chlorine

PERIODICAL: Avtomaticheskaya svarka. 1960. No. 10, pp.61-71

TEXT: The fabrication of titanium tubes by pressing is connected with high metal waste and tool consumption. In view of this fact and of the growing demand of the chemical industry in titanium pipes, the Moskovskiy trubnyy zavod (Moscow Tube Plant) has carried out tests in 1958 to fabricate these tubes by welding, and a technology has been developed for the welding of tubes of 12, 16, 20, 38 and 76 mm in diameter and 1.2 mm wall from VT1 (VT1) titanium. High-grade argon was used for shielding in the way described in a work that will soon be published (Ref.1) and which concerns the welding of tantalum. It is known from another work (Ref.2) that titanium is resistant to HCl solutions being continually saturated with chlorine, but no information could be found in literature (Ref.3-6) on the behaviour of titanium

Card 1/5

✓

SR-05/60/000/010/011/015  
A 61/A135

Resistance of Welded Titanium Pipes in Hydrochloric Acid Saturated with Chlorine J

welds. VT1 titanium tubes of 25 mm diameter and 1.5 mm wall were welded with 160 amp, 12 volt current and 0.6 m/min welding speed, using 4 mm diameter electrodes and a 12 mm diameter nozzle, while the argon consumption was 9 liter/min on the arc and 6 liter/min in the blast. The test specimens were rings cut from the tubes and placed into glass test tubes on glass hooks. Chlorine was blown continually through the test solution (water solution). A test lasted 200 hours. The resistance of the metal was measured by the loss of weight, mechanical properties and microstructure. A corrosion rate of only 0.01 mm per year was found in a 5% HCl solution at 90°C, and 0.1 mm per year in a 20% solution at 60°C. The resistance in fumes was several times higher. The corrosion rate remained practically constant. The microstructure of all specimens was: cast metal of coarse-lacunar shape in the weld zone, and fine spherical grain shape with twins in base metal (Fig. 2,3). The test results prove the applicability of welded VT1 titanium equipment or tubes in HCl being continually saturated with chlorine; a 5% HCl concentration is permissible for work in temperature not higher than 90°C, and a 20%  
Card 2/5

S/125/60/000/010/011/015  
A161/A133

Resistance of Welded Titanium Pipes in Hydrochloric Acid Saturated with Chlorine

concentration at temperature of not higher than 60°C. The free chlorine content must be about 0.2 g in 100 cm<sup>3</sup>. There are 3 figures and 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Moskovskiy trubnyy zavod (Moscow Tube Plant) (A.T. Konyushenko and R.V. Golovkin); NIOPiK im. Voroshilova (NIOPandK im. Voroshilov) (Kh.A. Tseytlin, V.A. Strunkin)

SUBMITTED: March 14, 1960

Card 3/5

S/125/60/000/010/011/015  
A161/A133

Resistance of Welded Titanium Pipes in Hydrochloric Acid Saturated with  
Chlorine

Figure 2:  
The microstructure of a specimen tested for 200 hours in 20% HCl acid at  
60°C (x 100): a - welding seam; b - near-weld zone; c - base metal



Card 4/5

a)



b)



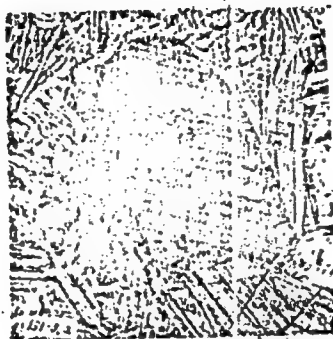
c)

S/125/60/000/010/011/015  
A161/A133

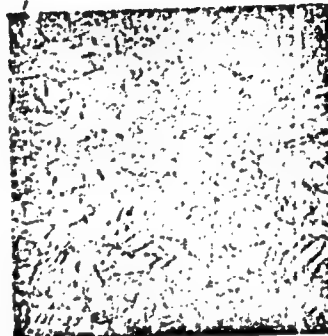
Resistance of Welded Titanium Pipes in Hydrochloric Acid Saturated with Chlorine

Figure 3:

The microstructure of a specimen tested for 200 hours in the fumes of a 20% hydrochloric acid containing chlorine, at 60°C (x 100)  
a - welding seam  
b - base metal



a.)



b.)

Card 5/5



18.8000

77031

SOV/80-33-2-14/52

AUTHORS: Zeytlin, Kh. L., Strankin, V. A., Revazov, Ye. K.

TITLE: Effect of Cathodic Polarization Upon Stability of Tantalum in Hydrochloric Acid

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 2, pp 345-348 (USSR)

ABSTRACT: The authors studied the effect of temperature and current density upon degree of disintegration of tantalum metal which takes place when negative potential is applied to the latter. Negative potential was created in tantalum by: (1) - connecting tantalum plates (thickness 1 mm and area  $\text{cm}^2$ ) with the negative pole of a current source, as shown in Fig. 1:

Card 1/5

Effect of Cathodic Polarization Upon  
Stability of Tantalum in Hydrochloric Acid

7703-  
SOV/80-33-2-14/52

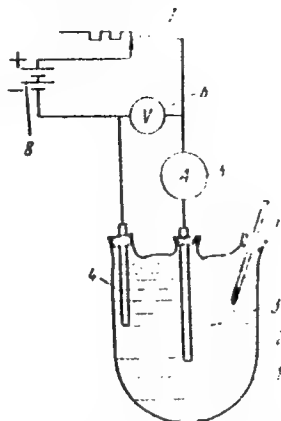


Fig. 1. Diagram for application of negative potential to tantalum: (1) 0.75 l flask; (2) 20% HCl; (3) graphite anode; (4) tantalum sample; (5) milliammeter; (6) voltmeter; (7) variable resistance; (8) source of direct current; (9) thermometer. Anode-cathode distance = 2.5 cm.

Card 2/5

Effect of Cathodic Polarization Upon  
Stability of Tantalum in Hydrochloric Acid

77039  
SOV/80-33-2-14/52

and, (2) - by contacting (through an elastic rubber ring or a metal conductor) the tantalum plates with a steel bar (diameter 15 mm, length 150 mm), both immersed in 20% HCl. Duration of experiments (performed at 20 and 60°) was determined by appearance of fissures on the sample. Fig. 2 shows the results of this study.

Card 3/5

Effect of Cathodic Polarization Upon  
Stability of Tantalum in Hydrochloric Acid

77639  
SOV/80-33-2-14/52

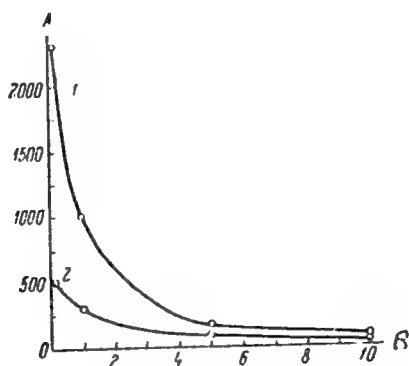


Fig. 2. Tendency of tantalum to crack as a function of current density at temperature 20° (1) and 60° (2); A - time to the moment of cracking (in hours); B - cathode current density (in amp/m²).

Card 4/5

Effect of Cathodic Polarization Upon  
Stability of Tantalum in Hydrochloric Acid

77639  
SOV/80-33-2-14/52

Behavior of tantalum in electrolysis of HCl is similar to behavior of steel during cathodic polarization [Karpenko, G. V., Kripyakevich, R. I., Doklady Akad. Nauk SSSR, 120, 4, 827 (1958)] 7. Rise of temperature speeds up the cracking process by speeding up diffusion of atomic hydrogen and its combination into molecules in the body of the metal. In the experiment designed to investigate the action of molecular hydrogen, the tantalum plate, placed into a filter funnel with HCl, was continuously washed with molecular hydrogen (obtained in electrolysis of 30% KOH) which entered the funnel through the filter. No changes were noted in appearance of tantalum. There are 3 figures; 1 table; and 9 references, 7 Soviet, 1 German, 1 U.K. The U.K. reference is: Metal. Ind., 66, 25-26, 406 (1945).

ASSOCIATION: K. Ye. Voroshilov Institute of Organic Intermediates  
and Dyes (Institut organicheskikh poluproduktov i  
SUBMITTED: krasitsley imeni K. Ye. Voroshilova)  
February 2, 1959

Card 5/5

s/080/60/033/04/17/045

AUTHORS: Tseytlin, Kh.L., Revazov, Ye.K., Strunkin, V.A. 21  
 TITLE: The Effect of Cathode Polarization of Tantalum on Its Electroconductivity  
 PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol 33, Nr 4, pp 850 - 854

TEXT: Cathode polarization of tantalum in hydrochloric acid is accompanied by hydrogenation of the metal and leads to its cracking. In the experiments tantalum plates (with about 1% of niobium), 1 mm thick and 90 mm long and with a surface of 30 - 35 cm<sup>2</sup>, were used as cathode. A graphite rod served as anode. The measurements were carried out in an oil bath and lasted 5 - 10 minutes. Under the conditions studied the electric resistance of tantalum in the case of cathode polarization increases in direct proportion to the quantity of hydrogen absorbed. With an increase in the duration of the cathode polarization of tantalum and the current density from 0.1 to 10 A/m<sup>2</sup>, the amount of hydrogen absorbed by tantalum increases and consequently also its electroresistance. With an increase in the thickness of tantalum from 1 to 5 mm the time needed for the saturation with hydrogen increases considerably, and so does correspondingly the electroresistance. Cracking of tantalum starts during cathode polarization, if its

Card 1/2

S/080/60/033/04/17/045

The Effect of Cathode Polarization of Tantalum on Its Electroconductivity

specific electric resistance increases by 25 - 40% at 20°C and by 90 - 110% at 60°C relative to the initial value.

There are: 2 diagrams, 3 graphs and 8 references, 6 of which are Soviet and 2 German.

ASSOCIATION: Institut organicheskikh poluproduktov i krasiteley imeni K.Ye. Voroshilova  
(Institute of Organic Semi-Finished Products and Dyestuffs imeni K.Ye. Voroshilov)

SUBMITTED: April 22, 1959

Card 2/2

18 8300

26564

S/080/60/033/012/023/024  
D209/D305

AUTHORS: Tseytlin, Kh.L., and Strunkin, V.A.  
TITLE: Influence of chlorine on the corrosion of titanium by  
hydrochloric acid  
PERIODICAL: Zhurnal prikladnoy khimii, v. 33, no. 12, 1960,  
2796 - 2799

TEXT: The corrosion of titanium by various acids and oxidizers has been studied by I.I. Kornilov (Ref. 1: Khim. nauka i prom. 3,6, 803 1958), V.N. Eremenko (Ref. 5: Titan i yego splayy (Titanium and its Alloys), Izd. AN UkrSSR, Kyev, 1955) and others, but relatively little is known of the effect of chlorine on the stability of Ti in HCl apart from some data recently published by P.J. Gegner et al. The authors accordingly conducted a series of tests in order to obtain further information on this problem, the specific objectives being the determination of the influence of a fixed amount of free chlorine and the effects caused by varying its concentration in the HCl solution. The experimental procedure involves the

Card 1/4



25664

S/080/60/033/012/023/024  
D209/D305

Influence of chlorine on the ...

insertion of a Ti specimen (30 x 16 x 1mm) in a glass holder; the placing of the holder in a test tube provided with a reflux condenser; the addition of 150 ml of conc. HCl; and the supply of Cl<sub>2</sub> gas to the solution from a cylinder. The results confirm previous data on the high degree of Ti corrosion in HCl, especially at elevated temperatures and acid concentrations; however, free chlorine markedly retards this process. Thus, no Ti is dissolved at room temperature whatever the concentration of HCl provided the acid is continuously saturated with free chlorine (10 ml/min). Under these conditions Ti is also stable at the following temperatures and concentrations of HCl: 90° -- 5 %; 80° -- 10 %; 70° -- 15 %; 60° -- 20 %. As regards the influence of the concentration of free chlorine on the corrosion of Ti in 20 % acid, it is shown that 0.001 g Cl<sub>2</sub>/100 ml HCl is sufficient to bring about a 100-fold decrease in the rate of metal solution. This effect is annulled when the exposure time is increased to 25 - 50 hours. But Ti remains in a passive state for periods of 25 and 50 hours if the initial concentration of the solution is increased to 0.037 and 0.084 g Cl<sub>2</sub>/100 ml

Card 2/4

Influence of chlorine on the ...

25664  
S/080/60/033/012/023/024  
D209/D305

HCl respectively. The authors do not know of any other metal apart from Ta which resists attack by chlorinated HCl. This phenomenon is of special interest since Kh.L. Tseytlin (Ref. 7: Zh. prikl. khimii 33, 1, 160, 1960) has shown that chlorine often accelerates the corrosion of many metals and their alloys. The authors infer from the data of M.V. Mal'tsev et al (Ref. 10: Giredment, sb. nauch. tr. 1, 481, Metallurgizdat, 1959) that the resistance of Ti to corrosion by chlorinated acid is due to the formation of an inert film of oxide. This passive layer evidently has a tendency towards splintering and exfoliation which is best prevented by continuously saturating the HCl with free chlorine, and it is concluded that such a technique helps to reduce the solubility of the film in a solution of HCl possessing a concentration of  $\leq 20\%$  and a temperature of  $\leq 60^\circ$ . There are 2 figures and 11 references: 6 Soviet-bloc and 5 non-Soviet-bloc. The references to the English-language publications read as follows: L.W. Gleekman, Corrosion, 14, 9, 15, 1958; P.J. Gegner et al, Corrosion, 15, 7, 19, 1959. ✓

Card 3/4

Influence of chlorine on the ...

25664

S/080/60/033/012/023/024

D209/D305

ASSOCIATION: Institut organicheskikh poluproduktov i krasitel'yey  
im. K.Ye. Voroshilova (Institute of Organic Semipro-  
ducts and Dyestuffs im. K.Ye. Voroshilov) X

SUBMITTED: March 12, 1960

Card 4/4

S/123/61/000/014/042/045  
A004/A101

AUTHOR: Strunkin, V.A.

TITLE: Calculating gas turbine disks allowing for plastic deformations and metal creep

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 14, 1961, 28, abstract 141199 ("Tr. Kazansk. aviats. in-ta", 1960, no. 55, 91 - 102)

TEXT: The author analyzes the possibility of utilizing the method of elastic calculation of disks of arbitrary shape, widely used in plant practice, for the calculation of disks allowing for plastic deformations and creep. The method described in G.A. Kuzmin's article (see abstract 141108) is taken as the initial one, in which the disk profile is replaced by sections of constant thickness. It is suggested for elastic calculation to assume the magnitude of the modulus of elasticity ( $E$ ) to be depending on the temperature, while the magnitude of  $E_1$  - "modulus of plasticity" to be depending also on the magnitude of deformation at the analyzed point. The calculation is carried out by the method of successive approximations. The initial stress is assumed to be that which is obtained as a result of calculating the disk as an elastic one. The modulus of plasticity is

Card 1/2

Calculating gas turbine disks ...

S/123/61/000/014/042/045  
A004/A101

determined in the calculation process. The process of successive approximations for the section being investigated can be described by a certain curve. The author suggests a method of plotting the network of values of the "modulus of plasticity" considerably simplifying its determination. He presents a calculation example in which the method is analyzed making it possible to reduce a number of approximations. ✓

I. Kuznetsov

[Abstracter's note: Complete translation]

Card 2/2

STRUNKINA, O.V.

Work practice of the medical and sanitary squad in lowering morbidity among workers. Sov.zdrav. 15 no.2:23-26 Mr-Apr '56. (MLRA 9:7)

1. Zaveduyushchaya ushnyy otdeleniyem mediko-sanitarnoy chastl.  
(INDUSTRIAL HYGIENE  
lowering morbidity among workers, activities of medico-  
sanitary squad)

STRUNKOV, S.P.

Topological Hamilton groups. Usp. mat. nauk 20 no.6:157-161  
N-D '65. (MIRA 18:12)

1. Submitted April, 17, 1964

STRUNKOVA, Z.I.

Biology of the mite *Bryobia redicorzevi* Reck. (Acariformes,  
Tetranychidae) in Tajikistan. Dokl. AN Tadzh. SSR no.21:41-44  
'57. (MIRA 11:7)

1. Institut zoologii i parazitologii im. akademika Ye. N. Pavlovskogo  
AN Tadzhikskoy SSR.  
(Tajikistan--Mites)



STRUNKOVA, Z.I.

Parthenogenesis of the ordinary spider mite *Tetranychus*  
*urticae*. Dokl. AN Tadzh. SSR 2 no.1:53-56 '59.  
(MIRA 13:4)

1. Institut zoologii i parazitologii AN Tadzhikskoy SSR.  
Predstavleno chlenom-korrespondentom AN Tadzhikskoy SSR M.N.  
Narzikulovym.  
(Red spider) (Parthenogenesis)

STRUNNIKOV, E.A.

"Short course in meteorology and oceanography for sea captains"  
by P.G. Vovchenko, A.E. Zubkov. Reviewed by E.A. Strunnikov.  
Meteor. i gidrol. no.12:49-50 D '62. (MIRA 15:12)  
(Meteorology, Maritime) (Oceanography)  
(Vovchenko, P.G.) (Zubkov, A.E.)

STRUNNIKOV, G.I.

Case of lipoma of the cecum. Zdrav. Kazakh. 22 no.2:73-74 '62.  
(MIRA 15:4)

1. Iz Ust'-Kamenogorskogo oblastnogo onkologicheskogo dispansera.  
(CECUM—TUMORS)

5629. MEASURES TO REDUCE EXCESSIVE CYLINDER WEAR. Strunnikov, M. F. (Avto. Prom., June, 1947, 4-8). Road tests have been carried out, mostly over inferior roads, on Russian GAZ lorries and cars using "second grade" petrol and liquified gas, respectively, and also on American vehicles of similar type. Cylinder wear on the Russian vehicles, although high, was in general considerably lower than that on the American vehicle under similar operating conditions. The chief cause of the high wear is stated to be corrosion, closely connected with fuel quality. Cylinder life with second grade petrol was 12-15,000 k.m. and with 3-70 petrol (Apparently of higher quality) or liquified gas 17-23,000 k.m., respectively. Wear tended to be high in the plane of the crankshaft axis, with a bias away from the position of the intake valve. Apart from corrosion, the second factor affecting the wear pattern was piston cant, caused by non-symmetrical arrangement of connecting rods and uneven crankpin wear, resulting in the sharp edges of piston rings cutting into the cylinder wall. With 2 in. long austenitic cast iron sleeves at the top of the cylinder bore wear was reduced from 260-300 microns per 16-20,000 k.m. to 70-90 microns. A cylinder life of at least 40,000 k.m. before reboring is expected. As a result of these tests, all

GAZ-51 engines are being equipped with short austenitic sleeves at the top of the cylinder bores and with a chromium plated top piston ring.

"I.R.A.

1A 12T11

USSR/Engines, Gasoline  
Engines, Automobile

Feb 1947

"Depreciation of a Six-cylinder GAZ Engine,"  
N. Strunnikov, 3 pp

"Avtomobil'" Vol XXV, No 2

Detailed description with graphs and diagrams of wear on cylinders and piston rings of an uncased engine and of imported motor vehicles. Also wear on GAZ-51 automobile engine now being produced at Auto Plant imeni Molotov. (2 $\frac{1}{2}$ -ton capacity, six-cylinder gasoline engine model GAZ-51, 70 hp, 2800 revolutions per minute.)

12T11

USSR/Engineering  
Engines, Automobile  
Oil Lines

Sep 48

"Effect of Nonsymmetrical Connecting Rods and Uneven Inclinations of Oil Lines on the Wear of the GAZ-51 Engine," N. F. Strunnikov, Gor'kiy Auto Factory imeni Molotov, 5 pp

"Avto Prom" No 9

Treats subject under the following: (1) big end journals, (2) connecting rod bushes, (3) main journals (4) causes of elliptical and conical wear of big end journals, (5) canting of connecting rod and piston

17/49T26

USSR/Engineering (Contd)

assembly, and (6) conclusions. Includes two photographs, 14 diagrams.

Sep 48

17/49T26

STRUNNIKOV, N. F.

STRUNNIKOV, N. F. /

20966 Strunnikov, N. Regulirovka zatyazhki podshipnikov vedushchey shesterni GAZ-51 i GAZ-63. 'Automobil', 1949, No. 6, s. 6-7.

SO: LETOIS LUNAL STATEY- Vol. 28, Moskva, 1949



L'VIN, M.; STRUNNIKOV, N. [F.] laureat Stalinskoy premii.

Experience in operating the ZIS-5 truck. Avt.transp. 32 no.7:  
23-24 JI '54. (MLRA 7:9)

1. Glavnyy inzhener Chelyabinskogo oblavtotresta (for L'vin)
2. Dotsent Chelyabinskogo politekhnicheskogo instituta (for Strunnikov)  
(Motor trucks)

STRUNNIKOV, N.F., kand. tekhn. nauk.

Determining wear characteristics for journals and bearings of  
automobile engine crankshafts. Sbor. st. CHPI no.10:31-43 '57.  
(Crank and crankshafts) (MIRA 11:1)

STRUMNIKOV, Nikolay Fedorovich; SOBOLEV, Leonid Mikhaylovich;  
SOLOV'YEV, Yuriy Alekseyevich; BAGANOVA, N., rel.

[Tractors; a concise manual] Traktory; kratkii spravochnik.  
Kostroma, Kostromskoe knizhnoe izd-vo, 1963. 434 p.  
(MIRA 18:9)

COMMON ELEMENTS										COMMON VARIABLES									
1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									
<p align="center"><b>PROCESSES AND PROPERTIES INDEX</b></p> <p align="right">825</p> <p><b>Reverting of silver by Sudakov's method.</b>  <b>S. I. Kuznetsov and N. A. Gerasimov (Soviet. Pat.,</b>  <b>1958, 18, No. 4, 25-26).</b> The silver is digested for  12 hr. with 2-3-5-8% NaOH (NaOH 10-18% of  wt. of air-dry silver) in the cold, drained, treated for  2-5-8 hr. at 2-3-5 atm. with superheated steam,  washed, pressed, dried, and bleached for 6 hr.  at 30-35° with <math>\text{CaOCl}_2</math> (2-3% active Cl). <b>Clg. Am.</b></p>																			
<p align="center"><b>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p>																			
1ST GROUP										2ND GROUP									
1ST AND 2ND COLUMNS										3RD AND 4TH COLUMNS									